

CLAIMS:

What is claimed is:

1. A head stack assembly for a data recording disk  
2 drive, comprising:

3 a carriage on which a coil is mounted, having a  
4 first surface and a second surface;

5 a first head gimbal assembly mounted on said first  
6 surface;

7 a second head gimbal assembly mounted on said second  
8 surface; and

9 wherein a datum member for positioning said first  
10 head gimbal assembly on said first surface and for  
11 positioning said second head gimbal assembly on said  
12 second surface is formed on each of said first surface  
13 and said second surface of said carriage.

1. A head stack assembly according to claim 1 wherein  
2 said datum member is two datum pins spaced from each  
3 other, and each of said first head gimbal assembly and  
4 said second head gimbal assembly has two apertures into  
5 which said two datum pins are inserted, respectively.

1. A head stack assembly according to claim 2 wherein  
2 said carriage has an aperture into which a pivot member  
3 is inserted, and said aperture is located between said  
4 two datum pins.

- 1       4. A head stack assembly according to claim 3 wherein a  
2       line passing through said two datum pins is inclined from  
3       a center line extending in a longitudinal direction of  
4       said head stack assembly.
- 1       5. A head stack assembly according to claim 4 wherein  
2       the total weight of said head stack assembly is balanced  
3       at a center of said pivot member.

1       6. A head stack assembly for a data recording disk  
2            drive, comprising:

3            a carriage on which a coil is mounted, having a  
4            first surface and a second surface;

5            a first head gimbal assembly mounted on said first  
6            surface;

7            a second head gimbal assembly mounted on said second  
8            surface; and

9            wherein said carriage has a first aperture into  
10          which a pivot member is inserted, and a diameter of said  
11          first aperture is larger than a diameter of said pivot  
12          member, each of said first head gimbal assembly and said  
13          second head gimbal assembly has a second aperture, the  
14          center of which is aligned to the center of said first  
15          aperture, the diameter of said second aperture is larger  
16          than said diameter of said pivot member, said second  
17          aperture has a V-shaped edge for aligning said pivot  
18          member, and a portion of said carriage is extruded into  
19          said first aperture, and said portion extruded from said  
20          carriage pushes said pivot member to said V-shaped edge  
21          of said second aperture when said pivot member is  
22          inserted into said second aperture and said first  
23          aperture.

2       7. A head stack assembly according to claim 6 wherein  
3            said V-shaped edge is formed to align the center of said  
4            pivot member to a center line extending in a longitudinal  
                  direction of said head stack assembly.

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1       8. A head stack assembly according to claim 7, wherein  
2       the total weight of said head stack assembly is balanced  
3       at a center of said pivot member.

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1       9. A head stack assembly according to claim 8, wherein  
2       material of said carriage is plastic resin, and material  
3       of said first and second head gimbal assemblies is metal.

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1 10. A head stack assembly for a data recording disk  
2 drive, comprising:

3 a carriage on which a coil is mounted, including a  
4 first surface and a second surface and having a first  
5 aperture into which a pivot member is inserted, wherein a  
6 diameter of said first aperture is larger than a diameter  
7 of said pivot member;

8 a first head gimbal assembly mounted on said first  
9 surface;

10 a second head gimbal assembly mounted on said second  
11 surface;

12 wherein two datum pins for positioning said first  
13 head gimbal assembly on said first surface and for  
14 positioning said second head gimbal assembly on said  
15 second surface are formed on each of said first surface  
16 and said second surface of said carriage;

17 wherein each of said first head gimbal assembly and  
18 said second head gimbal assembly includes a suspension  
19 load beam and an arm member, said suspension load beam  
20 has a rear portion, a bending portion and a front portion  
21 supporting a read/write head, and said arm member is  
22 stacked to said rear portion; and

23 wherein said suspension load beam has two apertures  
24 into which said two datum pins are inserted,  
25 respectively, and said suspension load beam has a second  
26 aperture, the center of which is aligned to the center of  
27 said first aperture, the diameter of said second aperture  
28 is larger than said diameter of said pivot member, said

29 second aperture has a V-shaped edge for aligning said  
30 pivot member, and a portion of said carriage is extruded  
31 into said first aperture, and said portion extruded from  
32 said carriage pushes said pivot member to said V-shaped  
33 edge of said second aperture when said pivot member is  
34 inserted into said second aperture and said first  
35 aperture.

6 11. A head stack assembly according to claim 10 wherein  
2 said first aperture is located between said two datum  
3 pins.

7 12. A head stack assembly according to claim 10 wherein  
2 a line passing through said two datum pins is inclined  
3 from a center line extending in a longitudinal direction  
4 of said head stack assembly.

8 13. A head stack assembly according to claim 12 wherein  
1 the total weight of said head stack assembly is balanced  
2 at a center of said pivot member.

9 14. A head stack assembly according to claim 10 wherein  
1 said V-shaped edge is formed to align the center of said  
2 pivot member to a center line extending in a longitudinal  
3 direction of said head stack assembly.

10 15. A head stack assembly according to claim 14 wherein  
1 material of said carriage is plastic resin, and material  
2 of said first and second head gimbal assemblies is metal.

1       16. A head stack assembly for a data recording disk  
2       drive, comprising:

3                 a carriage on which a coil is mounted, having a  
4       surface and a side wall vertical to said surface wherein  
5       a positioning pin is formed on said side wall and a  
6       positioning grooves extending from said side wall to an  
7       inside of said carriage is formed;

8                 a head gimbal assembly mounted on said surface and  
9       supporting a read/write head;

10                a flexible cable having a first portion, on which  
11       connecting pads connected to said read/write head are  
12       formed, a second portion, on which connecting pads  
13       connected to said coil are formed and a third portion  
14       from which said first portion and said second portion are  
15       branched; and

16               wherein said first portion has an aperture and said  
17       second portion has a latch structure, said positioning  
18       pin is inserted into said aperture of said first portion  
19       and said latch structure of said second portion is  
20       inserted along said positioning grooves to position said  
21       first portion along said side wall of said carriage.

1       17. A head stack assembly according to claim 16 wherein  
2       said carriage is provided with a guide member which  
3       includes a top portion parallel to said surface of said  
4       carriage and having one end coupled to said carriage and  
5       the other end, a side portion parallel to said side wall  
6       and having one end coupled to said the other end of said  
7       top portion and the other end, and a support portion  
8       coupled between said the other end of said side portion  
9       and said carriage.

10      18. A head stack assembly according to claim 17 wherein  
11     said first portion and said second portion of said  
12     flexible cable are positioned between said wall and said  
13     side portion.

14      19. A head stack assembly according to claim 18 wherein  
15     a wire positioning pin is formed on said side portion.

16       20. A data recording apparatus, comprising:  
17           a frame;

18           a data recording disk mounted on said frame;

19           a head stack assembly pivoted on said frame, and  
20           having a front portion supporting a read/write head and a  
21           rear portion including a coil supporting frame;

22           wherein a first resilient member is extended along a  
23           first side surface of said coil supporting frame from  
24           said head stack assembly, and a second resilient member  
25           is extended along a second side surface of said coil  
26           supporting frame from said head stack assembly, and

27           wherein an inner crash stop member for engaging with  
28           said first resilient member and an outer crash stop  
29           member for engaging with said second crash stop member  
30           are formed on said frame.

1       21. A data recording apparatus according to claim 20  
2           wherein material of said first and second resilient  
3           members is plastic resin.

1       22. A data recording apparatus, comprising:  
2           a frame;  
  
3           a data recording disk mounted on said frame;  
  
4           a head stack assembly pivoted on said frame by a  
5           pivot member, and having a front portion supporting a  
6           read/write head and a rear portion supporting a voice  
7           coil;  
  
8           a magnet mounted on said frame to apply a magnetic  
9           field to said voice coil; and

10          wherein a said pivot member includes a washer made  
11        of a magnetic material and a fixing means for fixing said  
12        washer and said head stack assembly on said pivot member,  
13        said washer has a tab portion extended from the  
14        peripheral of said washer and said washer is fixed to  
15        said head stack assembly by said fixing means to position  
16        said tab portion to the nearest position to said magnet  
17        when said head stack assembly is stopped its outer most  
18        stop position.

1       23. A data recording apparatus according to claim 22  
2        wherein when said head stack assembly is stopped at said  
3        outer most position, said magnet and said tab portion  
4        generate a bias force for staying said head stack  
5        assembly at said outer most stop position.

1       24. A data recording apparatus, comprising:  
2           an electrically conductive frame;

3               a data recording disk mounted on said frame;  
4           an electrically conductive head stack assembly pivoted on  
5           said frame by an electrically conductive pivot member and  
6           having a front portion supporting a read/write head and a  
7           rear portion supporting a voice coil, wherein said head  
8           stack assembly is electrically connected to said frame  
9           and said pivot member, and a plurality of first  
10          connecting pads connected to said read/write head are  
11          formed on an insulating layer formed on said head stack  
12          assembly;

13               a control circuit mounted on said frame;

14               a flexible cable for connecting said first  
15          connecting pads to said control circuit; and

16               wherein a second connecting pad electrically  
17          connected to said head stack assembly is formed on said  
18          insulating layer, and said second connecting pad is  
19          electrically connected to a reference potential of said  
20          control circuit through said flexible cable.

1       25. A data recording apparatus according to claim 24  
2       wherein said head stack assembly includes a wiring plate  
3       which includes an electrically conductive supporting  
4       plate, an insulating layer, and said first and second  
5       connecting pads and electrically conductive wires formed  
6       on said insulating layer; said electrically conductive  
7       wires connect said first connecting pads to said  
8       read/write head and connect said second pad to said  
9       electrically conductive supporting plate.

1       26. A head stack assembly for a data recording disk  
2       drive, comprising:

3              a carriage mounted with a coil;

4              a head gimbal assembly mounted on a surface of said  
5       carriages; and

6              wherein a datum member for positioning said head  
7       gimbal assembly on said surface is formed on said  
8       surface.

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1       27. A head stack assembly for a data recording disk  
2       drive, comprising:

3                 a plurality of carriages each of which has a first  
4       surface and a second surface;

5                 a first head gimbal assembly mounted on said first  
6       surface of each of said plural carriages;

7                 a second head gimbal assembly mounted on said second  
8       surface of each of said plural carriages; and

9                 wherein a datum member for positioning said first  
10      head gimbal assembly on said first surface and for  
11      positioning said second head gimbal assembly on said  
12      second surface is formed on each of said first surface  
13      and said second surface of each of said plural carriages.

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